

Finding and Assessing Scientific/Technical Materials

EIAO Course



Objectives

- Upon completion of this module the you will be able to:
 - Locate scientific and technical resources
 - Identify the sections of a scientific paper.
 - In given scenarios, evaluate and determine the adequacy of supporting documentation.
 - In a given scientific article, determine what the article can support in a HACCP system.

EIAO Internet Resources

- How to locate scientific and technical resources using the internet



FSIS Website

- askFSIS
- Microbiology Laboratory Guidebook
- Small Plant News
- Compliance Guides Index

Scientific and Technical Research

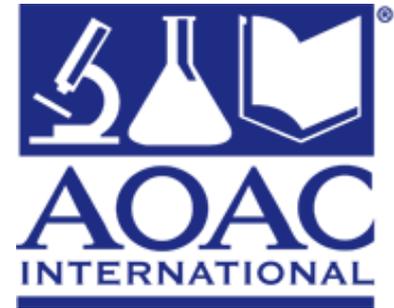
- National Agriculture Library – DigiTop
- Journal of Food Protection
- NAL Catalog
- Food Safety Research Information Office
- PubMed

Other Government Sites

- FoodSafety.gov
- Food & Drug Administration
 - FDA Bad Bug Book
- Centers for Disease Control and Prevention

Other Sources of Information

- Association of Official Analytical Chemists
 - AOAC Official Methods
 - Journal of AOAC
- Journal of Microbiological Methods



Academic Sources of Information

- International HACCP Alliance, TAMU
- University of Wisconsin - Center for Meat Process Validation
- Meat Science Extension – OSU
- Kansas State University - Thermometer Calibration Guide



Assessing Materials

- How to read a scientific or technical resource



Peer Reviewed or Refereed Journals

- Articles are reviewed by other experts in the field to get their opinion
 - Considered a reliable source of scientific or technical information



Format of a Scientific Paper

- Summary or abstract
- Introduction
- Materials and Methods
- Results
- Discussion

Summary or Abstract

- Gives a brief background to the topic/purpose
- Describes concisely the major findings
- Implications of the findings

Introduction

- Presents background necessary to understand why the study will advance knowledge
 - Brief discussion on current published literature
 - Purpose of the study or problem investigated
 - Rationale for study approach/technique used

Materials and Methods

- Entity being studied
- Description of the study site
- Protocol for collecting data
- How data was analyzed

Questions to Consider from the Materials and Methods

- What products did the researchers study?
- If a product's characteristics were provided, how similar are they to the establishment's product characteristics?
- What hazards did the researchers study?
 - Are they the same hazards identified in the hazard analysis?
 - Did they study surrogates, or indicator organisms only?

Questions to Consider from the Materials and Methods

- Can you identify which operational parameters were measured?
- Where were the measurements taken?
- Is the establishment taking measurements in these locations?
- What parameters, if any, were held constant across experimental conditions?
- What parameters, if any, were varied or changed in the research?

Critical Operational Parameters

- Potential impact of all parameters on the effectiveness on the intervention should be considered
 - Some parameters may or may not have been experimentally manipulated
- Note that some measured parameters in a study are not related to the efficacy of interventions and are not critical operational parameters.

Results

- Describes the experiments and documents the experiment outcomes
- Logic of this section generally follows directly from that of the introduction
- Usually contains the bulk of tables and graphs

Discussion

- Analyzing and interpreting the data from the results section
- Relationship of findings to other findings in the field of study
- Contribution of findings to knowledge or correct errors from previous work
- May provide guidance on appropriate applications of the research

Questions to Consider from the Discussion

- Did the authors provide some guidelines as to the limitations of the research or any cautions on application of results?
 - For example, were there some parameters that were controlled in the laboratory that differ in-plant?
 - If so, have you considered if those apply to the process?

Additional Questions to Consider

- How will the critical parameters of the study be applied to the actual production process?
 - Can they be implemented exactly as used in the study or do deviations need to be made based on facility design, equipment, or processing limitations?
- If the parameters are different, what is the justification for doing so?
- What records support the process?
- How does the establishment monitor that the critical parameters are being properly implemented?

EIAO Role

- Now lets look at how you will go about assessing the information.



EIAO Role

- As a EIAO you are expected to be knowledgeable in interpreting scientific or technical support.
- You must evaluate the scientific support being used by the establishment.
- You must be able to identify instances where the establishment may not be applying the scientific support appropriately to their process.

EIAO Role

- The number one consideration is:
 - How is the establishment applying or using the information in their HACCP system?
 - Does this application “make sense”?



Getting Started

- Supporting documentation may exist in various forms
- There is no one size fits all
- No regulatory requirements for how documentation must be organized and appear on paper

Reading a Scientific Paper

- First consider and review in your mind what you know about the topic
- Discuss the study with plant management
- Gain understanding of how the establishment is applying the study in their HACCP decision making
- Ask questions!

Assessing Scientific Support

- How is the scientific support being used in the establishment?
- How are the critical parameters of the study applied to the establishment's production practices?
- If the establishment is applying the parameters used in the study differently, is there justification or additional data to support doing something differently?

Assessing Scientific Support

- Do production practices appear to make sense based on what is commonly known about hazards?
- Do observations made on the production floor raise a concern that the critical parameters are being properly implemented?
- Do in-plant records exist to support what the plant is doing?

Assessing Scientific Support

- What issues raise a “red flag” that a closer review of the establishment’s practices are needed?
- Is there evidence that the establishment does not have support for its food safety practices?



Scientific – Technical Information Workshop

- Work in your groups to discuss the scenario
- Be prepared to report out.



Questions?

